

Stream	Date of flood	Sheet
Arkansas River (main stem)	April —, 1944 May 17, 1957	3,4,5 3,4,5
Little Arkansas River Floodway		3
Big Slough-Cowskin Floodway (diversion channel)		4,5
Little Arkansas River	April —, 1944 May 14, 1957	3,4 3,4
Chisholm Creek	April —, 1944 Aug. 24, 1960	3 3
West Fork Chisholm Creek	Aug. 24, 1960	3
West Fork West Branch Chisholm Creek	Oct. 2, 1955	3
East Fork West Branch Chisholm Creek	Aug. 24, 1960	3
Middle Fork Chisholm Creek	Aug. 24, 1960	1,3
South Branch Middle Fork Chisholm Creek	Aug. 24, 1960	1,3
Wichita Drainage Canal	Aug. 24, 1960	4
East Fork Chisholm Creek	Aug. 24, 1960	1,3,4
Third Street Drainage	July 29, 1960	4
Gypsum Creek	Aug. 24, 1960	2,4
Middle Fork Gypsum Creek	Aug. 24, 1960	2
Dry Creek	July 29, 1960	4
West Fork Dry Creek	Aug. 24, 1960	4
Big Slough (below Big Slough-Cowskin Floodway)	July —, 1951	4,5
Big Slough-Cowskin Floodway	July —, 1951	4,5
Big Slough (above Big Slough-Cowskin Floodway)	July —, 1951	3,4
Little Slough	Oct. 2, 1955	3,4
Cowskin Creek (above Big Slough-Cowskin Floodway)	Oct. 2, 1955	3,4
Calfskin Creek	Oct. 2, 1955	4
Dry Creek	—, 1942	4,5
Spring Creek	Aug. 24, 1960	2,5
West Fork Spring Creek	Aug. 24, 1960	2
Dry Creek	Aug. 24, 1960	2,5
Cowskin Creek (below Big Slough-Cowskin Floodway)	—, 1942	5

TABLE 1.—Summary of floods in the Wichita, Kansas, area during the period 1942-60.

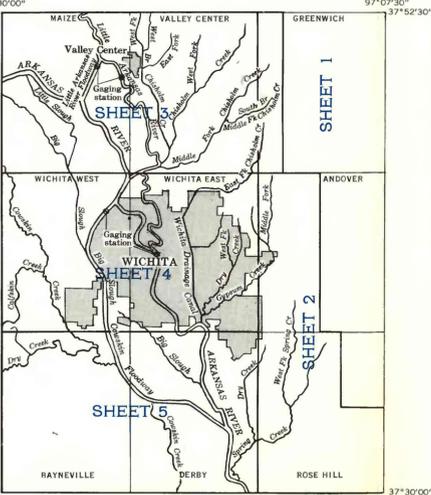


FIGURE 1.—Map showing location of streams in the vicinity of Wichita, Kansas

FLOODS IN THE ARKANSAS RIVER BASIN AT WICHITA, KANSAS, IN 1942, 1944, 1951, 1955, 1957, AND 1960

Introduction.—The approximate areas inundated by floods on the Arkansas River and its tributaries in the vicinity of Wichita, Kans., during the period 1942-60 are shown on a topographic map base to record the flood hazard in graphical form.

The streams for which flood areas are delineated are summarized in Table 1 and their locations are shown in Figure 1. The tributaries are listed in consecutive downstream order, in agreement with the order used since 1951 in publications of the Geological Survey. An indentation in the listing indicates that a stream is tributary of the preceding stream shown.

The preparation of these flood inundation maps was financed through a cooperative agreement between the City-County Flood Control Offices and the U.S. Geological Survey. The City-County Flood Control Offices are sponsored jointly by the City of Wichita and Sedgwick County, Kans.

The Corps of Engineers furnished information pertaining to the floods of 1942 and 1944.

Flood profile data were obtained and the flood inundation maps prepared by the City-County Flood Control Offices.

The flood profiles and explanatory text were prepared by Davis W. Ellis, U.S. Geological Survey.

Regulation.—The distribution and frequency of floods in Wichita have been modified by the Wichita-Valley Center Flood Control Project, designed by the Corps of Engineers and constructed during 1950-58. The project consists essentially of nonregulative control structures that divert flood flows around the city through a system of floodways. Training levees and other channel improvements are provided at places along original stream channels. Along streams that are affected by the project, inundated areas for floods that occurred before the project was constructed are shown in light blue. These areas would be reduced somewhat if the same floods were to recur under present conditions. Areas inundated by floods that occurred after the project was completed or by floods on streams not affected by the project are shown in dark blue.

Greater floods are possible but no attempt has been made to show their probable overflow limits. The extent of future flooding will depend upon the degree of maintenance of the flood-control structures and stream channels as well as on the vagaries of precipitation. Protective works built after 1960 may further reduce the frequency of flooding but will not eliminate the possibility of flooding in the area. New highways and other cultural changes made after 1960 may influence the inundation pattern of future floods.

Floods experienced.—The flood of 1942 is the maximum known along the reach of Cowskin Creek below the Big Slough-Cowskin Floodway and also on Dry Creek, a tributary to Cowskin Creek located just above the Floodway. No significant flooding has been observed on Big Slough or on Cowskin Creek downstream from the Floodway since the Floodway was completed. The maximum known flood on Cowskin Creek above the Floodway occurred October 2, 1955.

The flood of April 1944 is the maximum known along the Little Arkansas River below Valley Center and along the lower reaches of Chisholm Creek. Greater floods have occurred on the Arkansas River but their limits are not defined.

Floods of the same magnitudes as those of May 17, 1957, on the Arkansas River and May 14, 1957, on the Little Arkansas River would inundate approximately the same areas now that were flooded in 1957.

The flood of July 1951, which was augmented by overflow from the Arkansas River, is the maximum known on Big Slough and Little Slough. The flood of October 2, 1955, on Big Slough and Little Slough is the maximum that occurred after training levees were constructed along the Arkansas River in 1953, and that flood inundated nearly the same area as the 1951 flood.

The flood of October 2, 1955, is the maximum known in the upper reaches of West Branch Chisholm Creek and West Fork West Branch Chisholm Creek. It also produced the maximum known flooding in the lower reaches of these creeks when there was no overflow from Little Arkansas River.

The flood of July 29, 1960, is the maximum known on Third Street Drainage, a tributary to Wichita Drainage Canal. In Dry Creek basin, a tributary to Gypsum Creek, maximum stages of about the same magnitude were experienced during the floods of July 29, 1960, and Aug. 24, 1960. The August flood was higher along Dry Creek below Lincoln Street but elsewhere in the basin the July flood was higher. The flood of August 24, 1960, is the maximum known on the remaining streams in the Chisholm Creek and Spring Creek basins. The August flood along the Wichita Drainage Canal is the maximum experienced since flow from Chisholm Creek and Middle Branch Chisholm Creek was diverted from the basin. Street flooding occurred at many places in the area adjacent to the Wichita Drainage Canal but the limits are not defined.

Flood height.—The height of a flood is usually stated in terms of the gage height or stage at a gaging station, which is the elevation of the water surface above a selected datum plane. Elevations shown are in feet above mean sea level, datum of 1929. Gage heights or stages at gaging stations in the Arkansas River basin in the vicinity of Wichita, can be converted to elevations above mean sea level by adding the gage height to the appropriate datum of gage listed below:

Gaging station	Datum of gage above mean sea level, in feet
Little Arkansas River at Valley Center (main channel)	1,327.66
Little Arkansas River Floodway	1,340.00
Arkansas River at Wichita (main channel at Douglas Avenue)	1,277.81
Big Slough-Cowskin Floodway	1,300.00

Flood profiles.—Water-surface profiles, constructed from marks left by floods are shown in figures 2-6. Profiles of floods corresponding to other flood heights can be plotted on these diagrams generally parallel to the profiles shown. River miles used for the profiles (fig. 2-6) correspond to those marked along the streams on the maps.

Depth of flooding at any point can be estimated by subtracting the ground elevation from the water surface elevation indicated by the profiles in figures 2-6. The approximate ground elevation can be determined from information indicated by contours on the map, although more accurate elevations can be obtained by leveling to nearby bench marks.

Additional data.—Other information pertaining to floods at Wichita, Kans., may be obtained at the office of the U.S. Geological Survey, Topeka, Kans., at the City-County Flood Control Offices, Wichita, Kans., and from the following published reports:

Ellis, Davis W., and Edelen, George W., Jr., 1960, Kansas streamflow characteristics, part 3, flood frequency: Kansas Water Resources Board Tech. Rept. no. 3, 221 p.

U. S. Geological Survey, 1952, Kansas-Missouri floods of July 1951: U. S. Geol. Survey Water-Supply Paper 1139, 239 p.

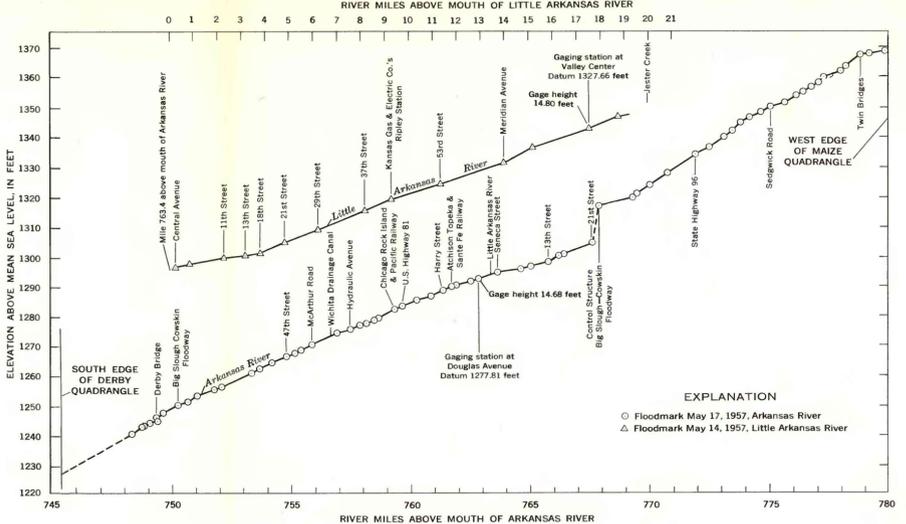
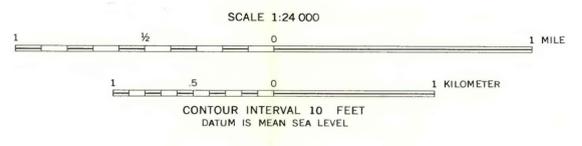
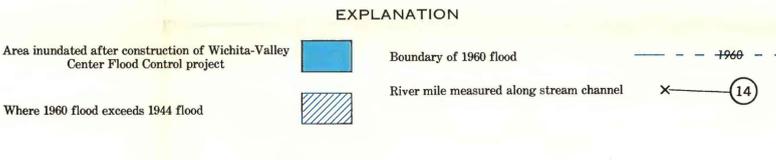


FIGURE 2.—Profiles of floods on Arkansas River and Little Arkansas River



FLOODS AT WICHITA, KANSAS

By
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